REMARKS

Applicants respectfully request reconsideration and allowance of all pending claims.

I. Status of Claims

Claims 1-3, 6, 7, 11, 15, 28-32, 34, 36, 38, and 39 remain pending in the present application, while claims 37 and 57-61 have been canceled, and claims 62-95 have been added. Accordingly, after entry of this amendment claims 1-3, 6, 7, 11, 15, 28-32, 34, 36, 38, 39, and 62-95 will be pending.

Claims 1-3, 36, 38, and 39 have been amended. Specifically, claim 1 has been amended to require an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof. Claim 1 has also been amended to require that the claimed reaction be carried out within a temperature range of about 55°C to about 85°C. In addition, claim 1 has been amended to recite -OTHP, -$OSiR_3$, -OBn, -OBs, -OTs, and -OMs in the definitions of Y and Z. Support for these amendments to claim 1 can be found, for example, in paragraphs [0040], [0043], and [0044] of the applicants' published application.

Claims 1-3, 36, 38, and 39 have also been amended to correct minor typographical errors and/or antecedent basis.

Support for new claims 62, 79, and 95 can be found, for example, in paragraphs [0034] to [0039] of the applicants' published application.

Support for new claims 63-78 and 80-94 can be found, for example, as follows: claim 63 (original claims 1 and 15, paragraphs [0008] to [0018], and [0043]); claims 64-78 (original claims 2, 3, 6, 7, 11, 28-32, 34, and 36-39); claim 80 (original claims 1 and 6, paragraphs [0008] to [0018], and [0042]); and claims 81-94 (original claims 2, 3, 7, 11, 15, 28-32, 34, and 36-39).

II. Election/Restrictions

Applicant confirms the oral election of claims 1-3, 6, 7, 11, 15, 28-32, 34, and 36-39 (Group I) for examination on the merits. As a result, claims 57-61 are canceled herein without prejudice to applicants' right to file a divisional application directed to the subject matter of claims 57-61.

III. Status of Specification

The specification has been objected to as not containing an abstract of the disclosure as required by 37 C.F.R. 1.72(b). Applicants note, however, that both the international application (WO 2004/043964) and the U.S. published application (US 2006/0014771) (which is a 371 application thereof) include an abstract. See M.P.E.P. § 608.01(b), ¶6.12.

To the extent that an abstract is nevertheless required to comply with 37 C.F.R. 1.72(b), applicants request that the specification be amended to include the following abstract:

ABSTRACT

A process for the preparation of a quaternary derivative of the morphinan alkaloid, the process comprising contacting a tertiary N-substituted morphinan alkaloid with an alkyl halide in an anhydrous solvent system, wherein the solvent system comprises an aprotic dipolar solvent with the aprotic dipolar solvent constituting at least 25 wt. % of the solvent system.

The above abstract is also submitted on a separately attached sheet per request.

Applicants have also amended the specification to correct typographical errors.

IV. Claim Rejections Under 35 U.S.C. § 112, Second paragraph

Reconsideration is requested of the rejection of claim 28 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Specifically, claim 28 is rejected as being indefinite in reciting "-OTHP, -$OSiR_3$, -OBn, -OBs, -OTs, and -OMs" in the definitions of Y and Z because there is no antecedent basis for this requirement in claim 1, from which the claim depends. As noted above, claim 1 has been amended to include "-OTHP, -$OSiR_3$, -OBn, -OBs, -OTs, and -OMs" in the definitions of Y and Z. Support for this amendment may be found, for example, in paragraph [0040] of the applicants' published application. As such, the rejection of claim 28, which depends directly on claim 1, should be withdrawn as moot.

V. Claim Rejections Under 35 U.S.C. § 102(b)

(A) Goldberg et al. (U.S. Patent No. 4,176,186)

Reconsideration is requested of the rejection of claims 1-3, 6, 7, 11, 29-32, 34, 36, and 38 under 35 U.S.C. § 102(b) as being anticipated by Goldberg et al. (U.S. Patent No. 4,176,186).

As amended, claim 1 specifies that the anhydrous solvent system comprises an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof. Claim 1 also requires that the aprotic dipolar solvent constitutes at least 25 wt. % of the solvent system.

Goldberg et al. generally describe the preparation of quaternary derivatives of certain morphinan alkaloids by quaternizing a tertiary N-substituted morphinan alkaloid with a methylating agent (e.g., methyl bromide, methyl iodide, or dimethyl sulfate). While Goldberg et al. note that a variety of solvents may be used, absolute acetone is the preferred and predominantly utilized solvent in Goldberg et al.'s quaternization reactions because the reaction product precipitates during the reaction in very pure crystalline form.[2]

Significantly, Goldberg et al. fail to disclose, expressly or inherently, conducting a quaternization reaction in the presence of an anhydrous solvent system comprising an

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[2] See col. 2, lines 12-15 and Examples 1-3, 5, 6, and 9 of Goldberg et al.

aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof in the amount required by the applicants' claim 1 (i.e., at least 25 wt. % of the solvent system).[3] At most, Goldberg et al. disclose conducting a quaternization reaction in the presence of "absolute acetone."

According to the Examiner, the process disclosed by Goldberg et al. in Examples 5 and 11 for quaternizing noroxymorphone by methyl bromide using dimethylformamide as a solvent anticipates claim 1 (and claims depending therefrom) when A represents -C(O)- and Y represents -OH.[4] In Example 5, however, dimethylformamide is used *in combination* with acetone, and the ratio of acetone to dimethylformamide in the solvent system is 50 mL to 0.5 mL, respectively.[5] Thus, the solvent system would contain 98.8 wt. % acetone and 1.2 wt. % dimethylformamide.[6] Notably, claim 1 requires that the aprotic dipolar solvent selected from the above group constitute at least 25 wt. % of the solvent system. Goldberg et al. fail to disclose this requirement.

In regards to Example 11, the Examiner's assertion that the quaternization reaction is performed using dimethylformamide as the solvent is simply incorrect. Dimethylformamide is employed as a solvent in Example 11, but not in a quaternization reaction. The Examiner apparently failed to recognize that Example 11 is divided into two parts: (a) and (b). In Part (a) of Example 11, the 3-hydroxy position of noroxymorphone is protected using sodium bicarbonate and trans-3-chloroallyl chloride in the presence of dimethylformamide to form a 3-O-allyl derivative.[7] In Part (b) of Example 11, the 3-O-allyl derivative produced in Part (a) is quaternized with

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[3] To satisfy *prima facie* anticipation, a reference must teach, expressly or inherently, each and every element required by claim 1 as interpreted by one of ordinary skill in the art. See M.P.E.P. § 2131.
[4] See Office action dated October 13, 2006, pages 3-4.
[5] See col. 4, lines 59-61 of Goldberg et al.
[6] Weight percent values were calculated using reported densities for acetone and dimethylformamide of 0.785 g/ml and 0.944 g/ml at 25°C, respectively.
[7] See col. 6, lines 38-60 of Goldberg et al.

trimethyloxonium fluoroborate in absolute methylene chloride, **not** dimethylformamide as asserted by the Examiner.[8]

Accordingly, applicants submit that claim 1 is patentable over Goldberg et al.

Claims 2, 3, 6, 7, 11, 29-32, 34, 36, and 38 depend directly or indirectly from claim 1, and are patentable for the same reasons as claim 1 and by virtue of the additional requirements therein.

Additionally, Goldberg et al. fail to disclose conducting the quaternization reaction on a substrate corresponding to formula 3 (i.e., a substrate having carbon-carbon single bonds between positions 6 and 7 and between positions 8 and 14, and a double bond between positions 7 and 8) (see applicants' claim 38). Accordingly, claim 38 is patentable over Goldberg et al. for this additional reason.

(B) Iorio et al. (Eur. J. Med. Chem. (1984), 19(1), 11-16)

Reconsideration is requested of the rejection of claims 1, 2, 6, 7, 11, 29-32, 34, 36, 38, and 39 under 35 U.S.C. § 102(b) as being anticipated by Iorio et al. (Eur. J. Med. Chem. (1984), 19(1), 11-16).

Iorio et al. describe the preparation and evaluation of quaternary morphinium salts by alkylation of morphine with alkyl halides (e.g., allyl bromide) or by alkylation of N-alkylnormorphines with methyl iodide.[9] Specifically, in one working example Iorio et al. describe the quaternization of morphine to form N-allylmorphinium bromide using excess allyl bromide (5 eq.) with acetonitrile as the solvent, and report a conversion time of 10 days at room temperature.[10] In the only other working example, Iorio et al. describe the quaternization of morphine to form N-cyclopropylmethylmorphinium iodide using chloromethylcyclopropane and potassium iodide with "dry" acetone and methanol (50:50 by volume) as the solvent.[11] In this

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[8] See col. 6, line 61 to col. 7, line 6 of Goldberg et al.
[9] See page 11 of Iorio et al.
[10] See page 15 of Iorio et al.
[11] Id.

example, the authors again report a conversion time of 10 days, with the reaction being conducted at 50-55°C.[12]

As noted above, amended claim 1 requires an anhydrous solvent system comprising an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof, and further requires that the reaction be carried out within a temperature range of about 55°C to about 85°C. At most, Iorio et al. disclose performing the quaternization reaction in the presence of acetonitrile or a combination of "dry" acetone and methanol at room temperature or 50-55°C.

Accordingly, applicants submit that claim 1 is patentable over Iorio et al.

Claims 2, 6, 7, 11, 29-32, 34, 36, 38, and 39 depend directly or indirectly from claim 1, and are patentable for the same reasons as claim 1 and by virtue of the additional requirements therein.

Additionally, Iorio et al. fail to disclose conducting the quaternization reaction on a substrate corresponding to formula 2 (i.e., a substrate having carbon-carbon single bonds between positions 6 and 7, between positions 8 and 14, and between positions 7 and 8) (see applicants' claim 2). Iorio et al. also fail to disclose conducting the quaternization reaction on a substrate corresponding to formula 1 wherein Y and Z (i.e., the substituents attached to the 14-position and the 3-position, respectively) are independently $-OCH_3$, -OAc, -OTHP, $-OSiR_3$, -OBn, -OBz, -OBs, -OTs, or -OMs wherein each R is independently hydrocarbyl (see applicants' claim 28). Accordingly, claims 2 and 28 are patentable over Iorio et al. for these additional reasons.

(C) Funke et al. (J. Chem. Soc. Perkin Trans. II (1986), 735-738)

Reconsideration is requested of the rejection of claims 1-3, 6, 7, 11, 29-32, 34, 36, and 38 under 35 U.S.C. § 102(b) as being anticipated by Funke et al. (J. Chem. Soc. Perkin Trans. II (1986), 735-738).

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[12] Id.

Funke et al. describe the quaternization of naloxone and oxymorphone using methyl bromide and allyl bromide, respectively, as the alkylating agent.[13] In one of their working examples, Funke et al. quaternize naloxone in an autoclave at 70°C using methyl iodide as the alkylating agent and acetone as the solvent.[14] In the other working example, Funke et al. quaternize oxymorphone in an autoclave at 70°C using allyl bromide as the alkylating agent and acetone as the solvent.[15] In the quaternization of naloxone with allyl bromide, in particular, the authors also note that they "tried many solvents and reaction conditions," most of which resulted in undesirable dissociation and formation of a 3-O-allyl compound.[16] As an example, Funke et al. describe the quaternization of naloxone using allyl bromide with dimethylformamide as the solvent, and report a mere 10% conversion after 9 days at room temperature.[17]

As noted above, claim 1 requires an anhydrous solvent system comprising an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof, and further requires that the reaction be carried out within a temperature range of about 55°C to about 85°C. At most, Funke et al. disclose conducting a quaternization reaction using dimethylformamide as the solvent, with the reaction being carried out at room temperature. Furthermore, none of the solvents in Funke et al.'s quaternization reactions are described as being anhydrous or otherwise substantially water-free. Notably, applicants' claim 1 requires the solvent system to be an *anhydrous* solvent system.

Accordingly, applicants submit that claim 1 is patentable over Funke et al.

Claims 2, 3, 6, 7, 11, 29-32, 34, 36, and 38 depend directly or indirectly from claim 1, and are patentable for the same reasons as claim 1 and by virtue of the additional requirements therein.

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[13] See page 736 of Funke et al.
[14] Id.
[15] Id.
[16] See page 736-7 of Funke et al.
[17] See page 737 of Funke et al.

Additionally, Funke et al. fail to disclose conducting the quaternization reaction on a substrate corresponding to formula 1 wherein Y and Z (i.e., the substituents attached to the 14-position and the 3-position, respectively) are independently -OCH_3, -OAc, -OTHP, -$OSiR_3$, -OBn, -OBz, -OBs, -OTs, or -OMs wherein each R is independently hydrocarbyl (see applicants' claim 28). Funke et al. also fail to disclose the use of an anhydrous solvent system comprising less than 0.2, less than 0.1, or less than 0.05 wt. % water (see applicants' claims 29-31). Further, Funke et al. fail to disclose conducting the quaternization reaction on a substrate corresponding to formula 3 (i.e., a substrate having carbon-carbon single bonds between positions 6 and 7 and between positions 8 and 14, and a double bond between positions 7 and 8) (see applicants' claim 38). Accordingly, claims 28-31 and 38 are patentable over Funke et al. for these additional reasons.

Accordingly, in view of the foregoing, applicants respectfully request reconsideration and withdrawal of the novelty rejections.

VII. Claim Rejections Under 35 U.S.C. § 103(b)

Reconsideration is requested of the rejection of claims 1-3, 6, 7, 11, 15, 28-32, 34, and 36, 38, and 39 under 35 U.S.C. § 103(b) as being obvious over Goldberg et al. (U.S. Patent No. 4,176,186).

For a *prima facie* case of obviousness to be established, the cited reference must describe all of the elements of the applicants' claimed invention and suggest or provide a motivation to modify the cited reference in a manner that teaches or suggests all of the claim requirements. Furthermore, a reasonable expectation of success in the modification must be found in the prior art. M.P.E.P. §§ 2143-2143.03.

Claim 1 is directed to a process for quaternizing a tertiary N-substituted morphinan alkaloid substrate. As noted above, the process comprises contacting the substrate with an alkylating agent in an anhydrous solvent system, with the anhydrous solvent system including at least 25 wt. % of an aprotic dipolar solvent selected from the

group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof.

The Goldberg et al. reference is described in detail above. Nowhere does Goldberg et al. teach or suggest the use of an anhydrous solvent system comprising at least 25 wt. % of an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof. Moreover, no there is no suggestion in Goldberg et al. that the use of the applicants' claimed solvent system would minimize the need for pressurized equipment and/or would speed up the reaction time in the claimed quaternization reaction.

The Examiner asserts that Examples 5 and 11 of Goldberg et al. describe all elements of the applicants' claims.[18] As discussed above, however, this assertion is simply incorrect. In Example 5 the solvent system for the quaternization reaction includes only 1.2 wt. % dimethylformamide, and in Example 11 methylene chloride (not dimethylformamide) is used as the solvent for the quaternization reaction.

It is apparently the Examiner's position that it would have been obvious to one skilled in the art to quaternize a morphinan alkaloid in the presence of any aprotic dipolar solvent. While Goldberg et al. note that a number of solvents *may* be used in the quaternization reaction, they predominantly utilize absolute acetone as the solvent and teach that acetone is especially preferred because the reaction product precipitates during the reaction in very pure crystalline form.[19]

For the most part, Goldberg et al. utilized a sealed pressure vessel in their working examples. Notably, they used a pressure vessel when methyl bromide or methyl iodide was the alkylating agent (see Examples 1, 2, 5, 6, 8, and 9), but did not when the alkylating agent was dimethyl sulfate (Example 3), or trimethyloxonium fluoroborate (Examples 10-12).[20] The logical conclusion is that they used a pressure vessel, *when it was necessary*, and did not, when it was not. Supporting this conclusion

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[18] See Office action dated October 13, 2006, page 5.
[19] See col. 2, lines 12-15 and Examples 1-3, 5-6, and 9 of Goldberg et al.
[20] In Examples 4 and 7, anion exchange was used to prepare the methobromide product.

is the fact that methyl bromide and methyl iodide have vapor pressures of 2.240 atmospheres and 0.526 atmospheres at 25°C, respectively, while dimethyl sulfate and trimethyloxonium fluoroborate, on the other hand, have negligible vapor pressures at best.[21] Thus, the latter two alkylating agents would remain in the reaction mixture in an open system over an extended period of days to even weeks, whereas the former two alkylating agents would not under the conditions of Goldberg et al. (e.g., three to seven days at 70°C (Examples 1, 2, 6, 8, and 9) or three weeks at room temperature (Example 5)).

As described in greater detail in applicants' specification, it has been discovered that when methyl bromide gas is dissolved in anhydrous 1-methyl-2-pyrrolidinone, an aprotic dipolar solvent,

> the methyl bromide is predominantly retained at temperatures of 85°C at relatively modest elevated pressures (e.g., # 2 atmosphere, #1.5 atmospheres, #1.25 atmospheres) or even at atmospheric pressures **without the use of relatively expensive pressure vessels**. In such embodiments, the reaction will be carried out at a temperature somewhere in the range of room temperature (about 25 EC) to about 90 EC, typically about 55 to about 85 EC. Advantageously, the rate, conversion, yield and concentration of naltrexone base to the N-methylated product in anhydrous 1-methyl-2-pyrrolidinone is dramatically increased at lower reaction temperatures (<70 EC) as compared to the reaction in acetone carried out at 125-140 EC (> 10 atm) over 24 hours.[22]

Consistent with this discovery, the invention of claim 1 requires that the reaction be carried out in a solvent system containing at least 25 wt.% of an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof. Significantly, the quaternary reaction product of claim 1 is soluble in such solvents which is **directly contrary** to the stated preferences of Goldberg et al. to carry out the reaction in a solvent in which the quaternary reaction product precipitates.

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[21] Dimethyl sulfate has a vapor pressure of 0.0009 atmospheres at 25°C and trimethyloxonium fluoroborate, as a salt, has no substantial vapor pressure at 25°C.

[22] Applicants' specification at page 4, paragraph [0044], emphasis added.

When Goldberg et al. used methyl bromide or methyl iodide the reaction required a period of days to weeks.[23] In applicants' Examples 1 and 3-11, in contrast, a period of only ***six to twelve hours*** was required. Although the applicants report stirring the reaction mixture overnight or over the weekend in Examples 4-11, this stirring was carried out *after the reaction was complete* and the reaction mixture was cooled to room temperature. Overnight or over the weekend stirring simply enabled the product to be precipitated from the reaction mixture and recovered on the next business day. This is evident from the description in Example 4:

> The methyl bromide solution was poured into the addition funnel and then added dropwise to the naltrexone base under a slow sweep of dry nitrogen. An exotherm was noted and the temperature of the solution climbed to 66 °C. **The reaction temperature and time was set at 62.5 °C for nine hours.** After an hour, a fine white suspension of naltrexone methobromide began to form. **At the end of nine hours** the heating was discontinued and the mixture was allowed to cool to room temperature and left standing overnight. Acetone (75 mL) was poured into the suspension to facilitate precipitation of soluble product.[24]

Examples 5-11 read similarly. Notably, in Examples 1 and 3 applicants report conversion times of 8 and 10 hours, respectively, *without* an overnight or weekend stirring period. The purity and yields of the quaternized products produced in these two examples are comparable to the products produced in the examples including overnight or weekend stirring periods (compare, for example, Examples 1 and 3 (90-93% and 99.36% purity by area on HPLC, respectively) with Example 9 (93% purity by area on HPLC)).

In conclusion, there is simply no suggestion in Goldberg et al. that the use of an anhydrous solvent system comprising at least 25 wt. % of an aprotic dipolar solvent selected from dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof would minimize the need for

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[23] See, e.g., Goldberg et al.'s Example 1 (three days), Example 2 (seven days), Example 5 (three weeks), Example 6 (four days), Example 8 (five days), and Example 9 (seven days).

[24] Applicants' Example 4, at page 6, paragraph [0071], emphasis added.

pressurized equipment and/or would speed up the reaction time in the claimed quaternization reaction.

Claims 2, 3, 6, 7, 11, 15, 28-32, 34, 36, 38, and 39 depend directly or indirectly from claim 1, and are patentable for the same reasons as claim 1 and by virtue of the additional requirements therein.

Accordingly, in view of the foregoing, applicants respectfully request reconsideration and withdrawal of the obviousness rejection.

VIII. New Claims 62-95

(A) New Claim 62

New claim 62 depends from claim 1, and is patentable for the same reasons as claim 1 discussed above and by virtue of the additional requirement therein. For example, claim 62 requires that the tertiary N-substituted morphinan alkaloid substrate and the quaternary derivative correspond to Formulae 4 and 4A, respectively. The Formulae 4 and 4A compounds are similar to the Formulae 1 and 1A compounds in claim 1, except that the Y substituent at the 14-position is not present and there is a carbon-carbon single bond between positions 7 and 8, and double bonds between positions 6 and 7 and between positions 8 and 14.

None of the references cited by the Examiner (i.e., Goldberg et al., Iorio et al., and Funke et al.) disclose conducting a quaternization reaction on a substrate corresponding to Formula 4 to form a quaternary derivative corresponding to Formula 4A (i.e., a substrate and a quaternary derivative each having a carbon-carbon single bond between positions 7 and 8, and double bonds between positions 6 and 7 and between positions 8 and 14).

Accordingly, applicants submit that claim 62 is patentable over the cited art.

(B) New Claims 63-78

New claim 63 is similar to original claim 1 and requires that the quaternization reaction be carried out in an anhydrous solvent system, wherein the solvent system

comprises 1-methyl-2-pyrrolidinone with the 1-methyl-2-pyrrolidinone constituting at least 25 wt. % of the solvent system. None of the references cited by the Examiner disclose this feature.

New claims 64-78 depend directed or indirectly from new claim 63, and are patentable for the same reasons as claim 63 and by virtue of the additional requirements therein. These claims generally correspond to claims 2, 3, 6, 7, 11, 28-32, and 36-39, which depend from claim 1.

Accordingly, applicants submit that claims 63-78 are patentable over the cited art.

(C) New Claims 80-94

New claim 80 is similar to original claim 1 and requires that the process comprise contacting a tertiary N-substituted morphinan alkaloid substrate with methyl bromide in an anhydrous solvent system comprising an aprotic dipolar solvent selected from the group consisting of dimethylacetamide, dimethylformamide, 1-methyl-2-pyrrolidinone, hexamethylphosphoramide, and mixtures thereof, with the aprotic dipolar solvent constituting at least 25 wt. % of the solvent system. None of the references cited by the Examiner disclose these features.

New claims 81-94 depend directly or indirectly from claim 80, and are patentable for the same reasons as claim 80 and by virtue of the additional requirements therein. These claims generally correspond to claims 2, 3, 7, 11, 15, 28-31, 34, and 36-39, which depend from claim 1.

Accordingly, applicants submit that claims 80-94 are patentable over the cited art.

(D) New claims 79 and 95

New claims 79 and 95 depend from claims 63 and 80, respectively, and are patentable for the same reasons as claims 63 and 80 discussed above and by virtue of the additional requirements therein. For example, these claims are similar to new claim 62; that is, they require that the tertiary N-substituted morphinan alkaloid substrate

and the quaternary derivative correspond to Formulae 4 and 4A, respectively. As discussed above, none of the references cited by the Examiner disclose this feature.

Accordingly, applicants submit that claims 79 and 95 are patentable over the cited art.

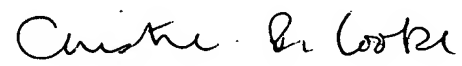
CONCLUSION

In light of the foregoing, applicants request an entry of the specification amendments, claim amendments, and abstract amendments; request a withdrawal of claim rejections; and solicit allowance of the claims. The Examiner is invited to contact the undersigned attorney should any issue remain unsolved.

The Commissioner is hereby authorized to charge the excess fee for the 28 claims in excess of 20 totaling $1400.00 to Deposit Account No. 13-1160. Please note that although there are 30 excess claims, 2 of the excess claims were previously charged upon receipt of the US transmittal letter dated April 5, 2005.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 13-1160.

Respectfully submitted,



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